CITY OF SPRINGFIELD
INTER-OFFICE MEMORANDUM

ATTENTION OF Robert Schaefer, PE DATE February 9, 1994

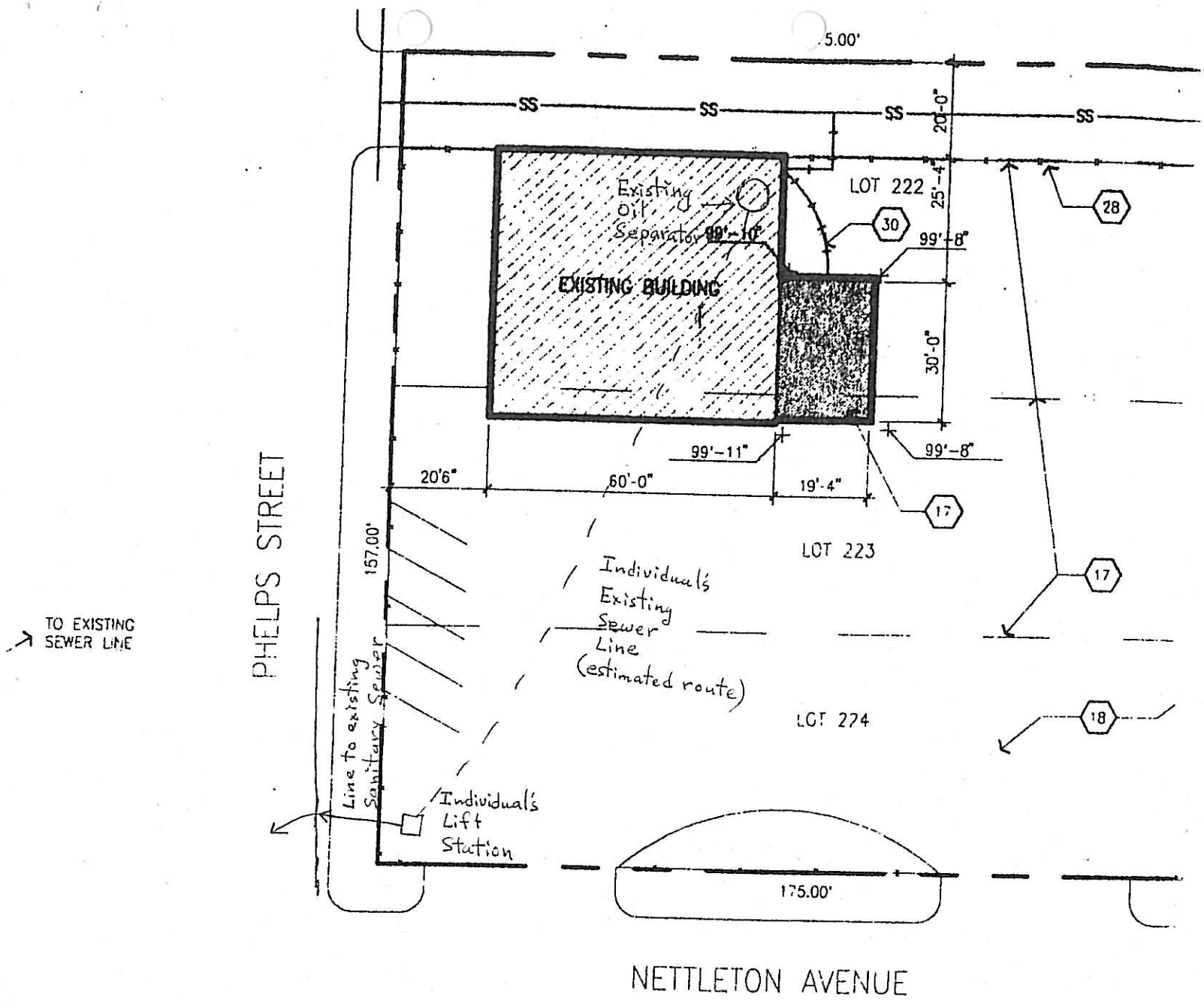
DEPARTMENT Public Works

The site plan for 440 N. Nettleton does not accurately display the way the property connects to the sanitary sewer, please refer to the attached diagram and partial Wye map. We have also obtained specific information on ACO oil/water separators, please refer to the attached information.

440 N. Nettleton

SIGNED David Renkoski

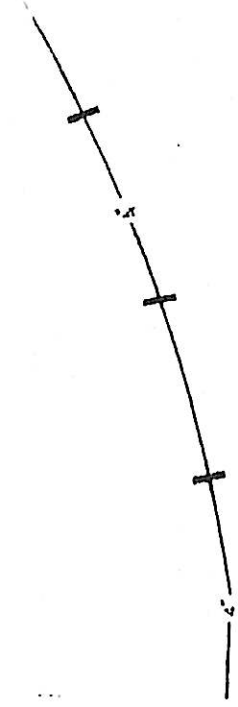
440 N. NETTLETON

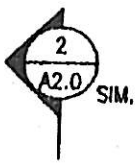


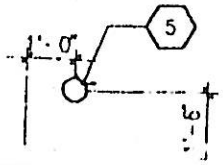
1 SITE PLAN

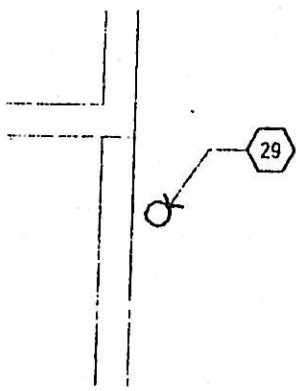
SCALE: 1" = 30'-0"

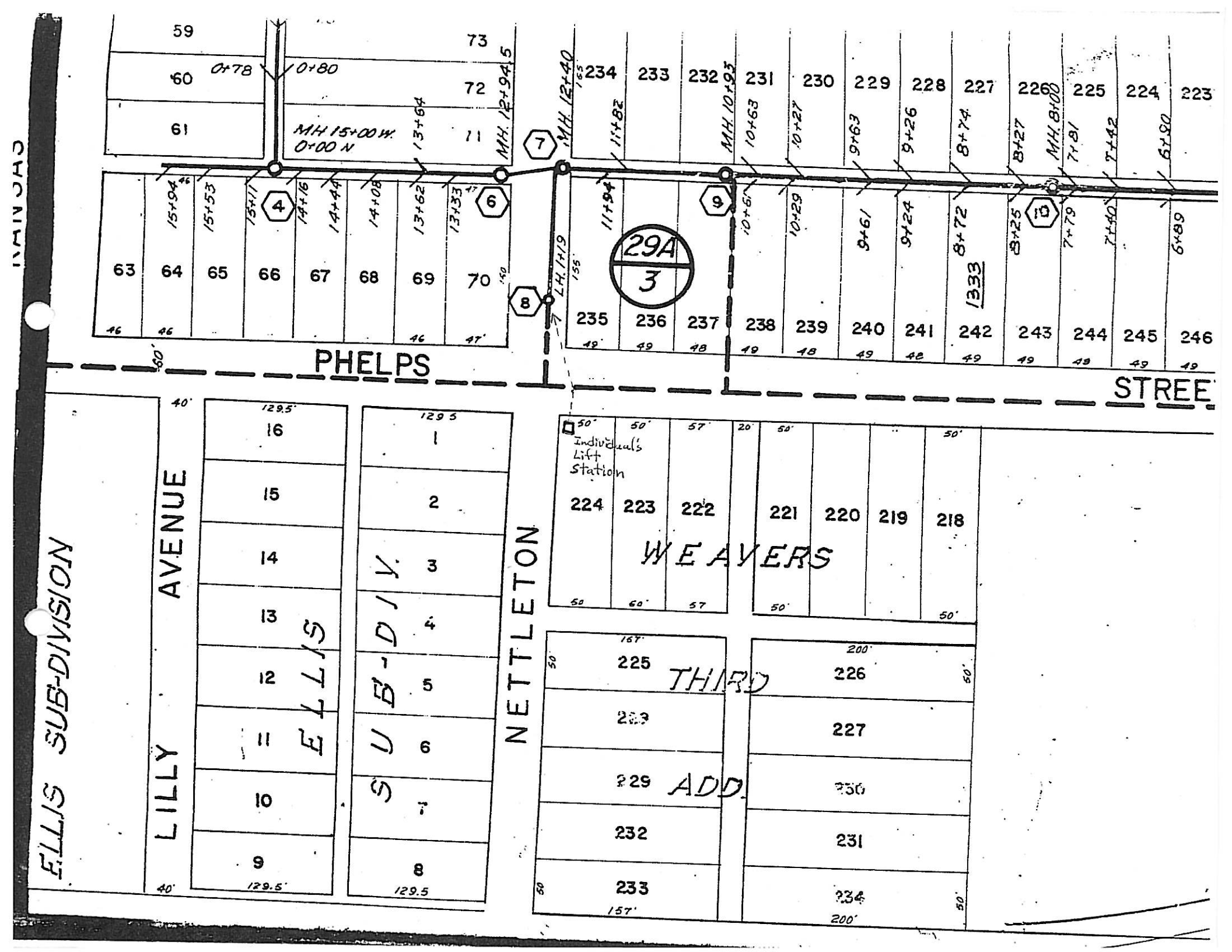
NORT










PHELPS
STREET
ELLIS SUB-DIVISION
LILLY AVENUE
ELLIS SUB-DIV.
NETTLETON
WEAVERS
THIRD ADD.
Individual's Lift Station
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1333
MH 15+00 W. 0+00 N
MH. 12+94.5
MH. 10+93
MH. 8+00
LH. 1+19
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Wilcox Truck Line, Inc.

Post Office Box 3325
Springfield, MO 65808

Phone (417) 883-711

Date: 2/9/94

To: Bob or Dave
864-1918

From: Curt Lindsey

Regarding: Separator

Facsimile Transmission Sheet
Fax # 417 - 887 - 3024

POLYMER PRODUCTS
ACO

ACO Polymer Products, Inc

12080 RAVENNA ROAD
CHARDON, OHIO
U.S.A. 44024
(216) 285-2711
FAX: (216) 285-8530

INSTALLATION PROCEDURES FOR ACO OIL/WATER SEPARATORS

ACO Polymer Products provides economical and easy-to-install oil/water separators which eliminate expensive and time consuming form work. By following the installation techniques outlined below you can achieve a fast, efficient installation.

The utmost care must be taken to unload/load, transport and install the AC Polymer concrete oil/water separator. Cloth slings, spreader bars and go rigging methods are required for installation. A forklift may be utilize for loading and unloading the oil/water separator.

An excavation must be provided that will ensure a minimum of four inches bedding concrete on ALL sides of the ACO oil separator. A suggested meth of installation is to set five 4" or 6" concrete blocks in the evacuated hole, and place the oil separator box on top of these blocks. The blocks should be set at each corner and in the middle. The tops of the blocks should be [illegible] level. [illegible] two feet of flowable, high slump, small aggregrate concrete should be poured under and around the box. Be sure that the box has at least one to two feet of water in it.

Another method that can be used is to install rebar into the base concrete (2 per side) to tie slab footing into base for extra strength.

The coverplates must be in place when final slab is poured around boxes. Seal the edge of coverplates and boxes with tape to prevent concrete seepage into the boxes. Concrete should be finished flush with top of coverplate. Do not "bump" or recess for vehicles to drive over.

It is important to pour the concrete evenly on ALL sides of the oil/water separator from the bottom up.

Proper installation will insure a lifetime of efficient oil/water separato service. If you have any questions please call 1-800-543-4764 for further assistance.

ACO DRAIN ®

Benefits from the ACO Oil Separator System

Fast, Efficient Separation

ACO oil separator systems are based on specific gravity and flow to effectively separate oil, grease and solids such as sand from water.

Doesn't Absorb Water

Because ACO polymer concrete is non porous with a water absorption rate of less than 0.1%, compared to an average of 5% for conventional concrete, it withstands water and oil absorption.

Durable and Long Lasting

You get a lifetime of service from ACO oil separators. ACO polymer concrete (14,500 PSI) is three times stronger than conventional concrete and flexural strength is almost six times stronger. Polymer concrete also withstands repeated freeze/thaw cycles.

Chemically-Resistant

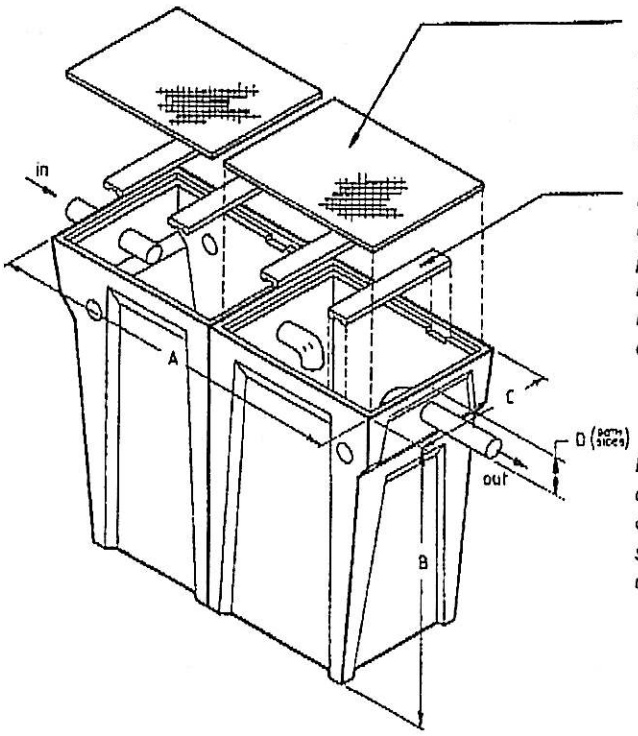
Extended contact with oils, acids, grease, salt, sludge and other chemicals won't deteriorate ACO polymer concrete oil separators.

One-Piece Construction

ACO oil separators are precast as a single unit for fast, easy installation in just a few hours. Custom sizes are available to meet your particular size and space requirements.

Maintenance Free

There is no maintenance required for ACO oil separators since they operate automatically. Cleaning the units is fast and simple, and can be accomplished in a short period.



COVER PLATES: 1/4" steel diamond plate with carbonic zinc coatings (2 required). Cover plates to withstand Class B load rating.

SUPPORT CHANNELS: Steel channels to fit into support pockets on rim of boxes (4 required). Support channels made of carbon steel and are 3"x 1.5" x .35" thick.

INLET/OUTLET TUBING: 4" diameter schedule 35 PVC. 6" inlets and outlets and schedule 40 pipe available upon request.

Capacity	DIM A	DIM B	DIM C	DIM D (Invert Elev.)	Weight
140 gal	76"	31"	26"	12"	685 lb
200 gal	76"	41"	26"	12"	725 lb
260 gal	76"	51"	26"	12"	800 lb

A Separator Designed for Your Needs

ACO oil separators are available in three standard sizes. A single-basin sand/solids trap separator is also available. All PVC 4" piping and a cover plate are provided.

ACO will furnish engineering and installation drawings for your review. Technical assistance is also available for on-site installation, which normally is accomplished in a few hours.

1/4" steel diamond cover plates with carbonic zinc coatings are standard. The load rating is Class B or Medium Duty for slow speed pneumatic tire traffic only; gross vehicle weight of 20 tons and a wheel load of 5 tons or less. Optional features including holes for venting and gasketing for cover plates can be priced upon request.

ACO separators work well with the ACO DRAIN® Channel Slope system. ACO DRAIN provides superior drainage flow and is easy to install using precast, interconnecting units. ACO DRAIN products are also made of durable, polymer concrete for long-lasting performance.

Contact ACO for Results

For more information on how ACO oil separators can solve your environmental needs, contact us. We'll work with you to determine the separator system that works best for your application.

ACO DRAIN ®

ACO Introduces Polymer Concrete Oil Separators

Reduce Emissions with Maintenance-Free Ease

Today's businesses are making a concerted effort to maintain a cleaner environment as they comply with the growing number of governmental, state and local regulations regarding emissions.

By effectively separating oils, grease and solids from waste water sewage, businesses are not only reducing environmental pollution but also meeting the guidelines of their governmental permits.

ACO Polymer Products, a world leader in the development and manufacture of polymer-based concrete products, has developed a unique, new separator system to help businesses keep oil, sludge, sand and other materials from polluting normal disposal and sewage systems.

The ACO oil separator is made of durable, chemical resistant polymer concrete to withstand the abuse of oils and grease, road salt, acids and other harsh substances. These chemicals can deteriorate conventional waste collection systems such as oil skimmers and oil separators made of cast iron, metals, fiberglass and poured-in-place concrete. ACO oil separators are precast at our factory and delivered to the site. They can be installed in just a few hours, including all PVC piping and cover plates.

In-Use Applications

ACO oil separators effectively help to separate oils, grease, acids, sand, food remains and sludges. They are utilized in a variety of applications in the following industries.

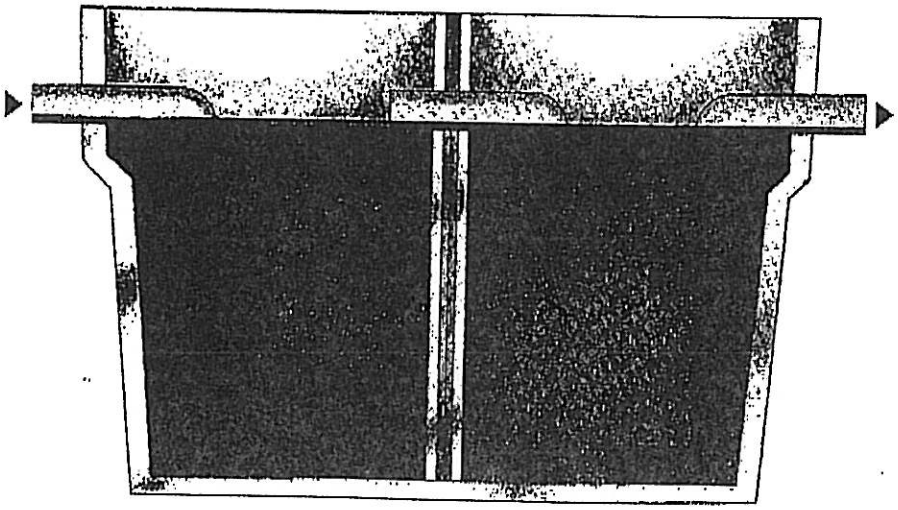
- Auto Service Areas
- Gas Stations/Garages
- Oil Change Centers
- Auto Body Shops
- Food Service Areas
- Food Processing Plants
- Manufacturing Plants
- Industrial Applications
- Restaurants

How an ACO Separator Works

The ACO oil separator is based on the principle of specific gravity, where lighter-than-water liquids such as oils and grease float above water and heavier-than-water solids such as sand sink.

Mixtures of water and oil, grease, sand and other materials travel through a drainage system to the ACO separator. These mixtures can be pre-filtered at the entry point to screen large items from entering the separator.

The mixtures enter the first basin through an inlet. Here, water and oils are separated from any solids which settle to the bottom. The oil and water then flow via a PVC pipe to a second basin where they separate as the oil rises to the surface. The water in this basin is drawn off through an outlet while accumulated oil is later removed for disposal.

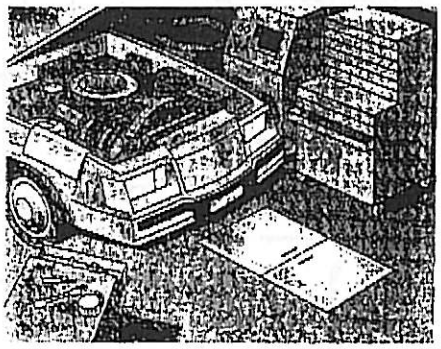


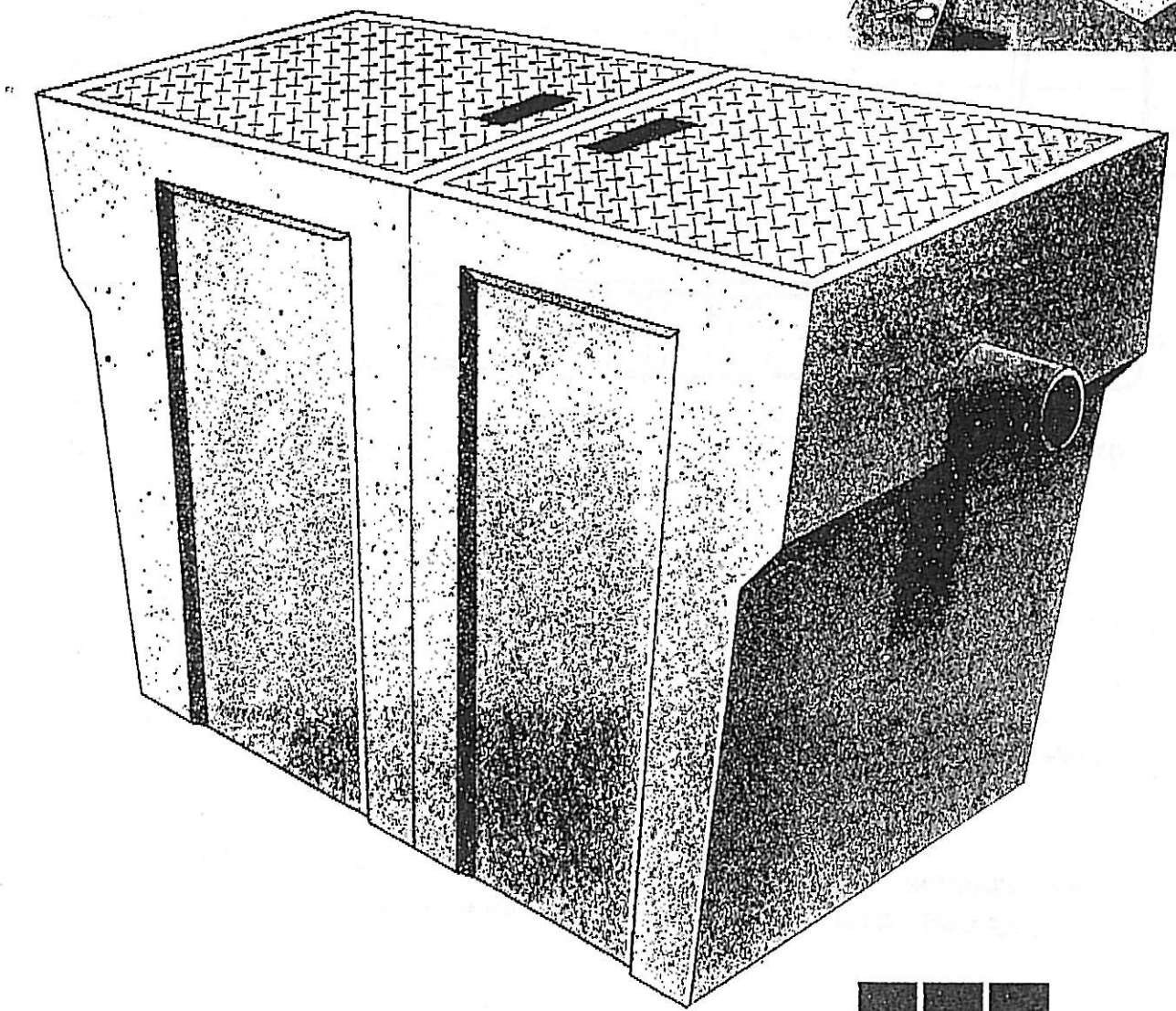
The entire process is continuous and virtually maintenance free.

ACO DRAIN ®

ACO Oil Separators

Efficient Oil/Grease/Sand Separation From ACO's Easy-to-Install, Precast Units

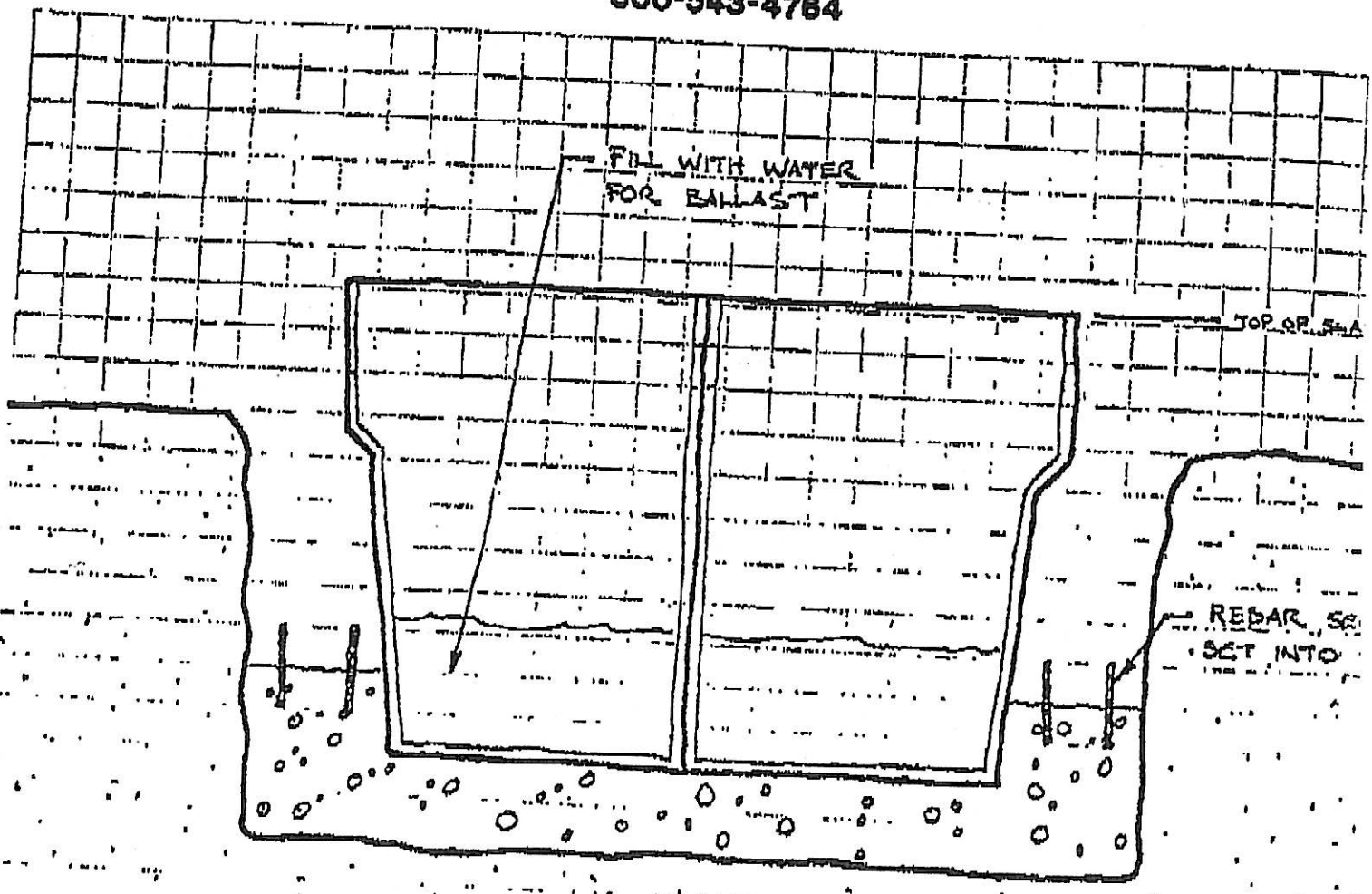




ACO

OIL/WATER SEPARATOR
BASIC INSTALLATION

POLYMER PRODUCTS
ACO
800-543-4764

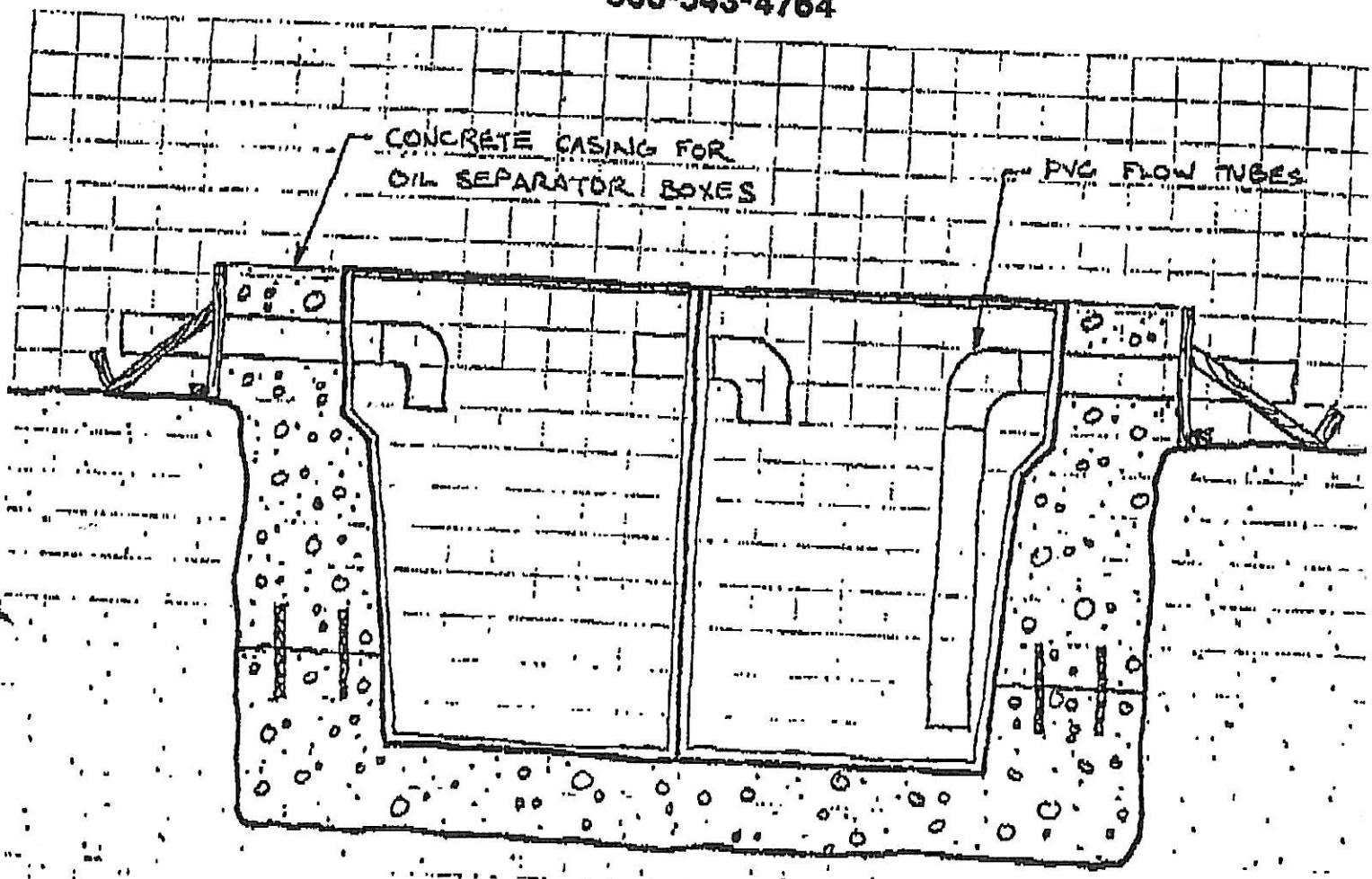


2. INITIAL BASE CONCRETE POUR AND BOX ALIGNMENT

- FILL BOXES WITH APPROX. 24" OF WATER FOR BALLAST WEIGHT TO HOLD POSITION AND AVOID FLOATING DURING CONCRETE POUR.
- USE FLOWABLE, HIGH SLUMP MIXTURE OF FINE AGGREGATE CONCRETE FOR BASE POUR.
- SET SECTIONS OF REBAR INTO BASE POUR TO PROVIDE SECURE JOINT BETWEEN THE TWO SLAB SECTIONS.

OIL / WATER SEPARATOR BASIC INSTALLATION

POLYMER PRODUCTS
ACO
800-543-4764

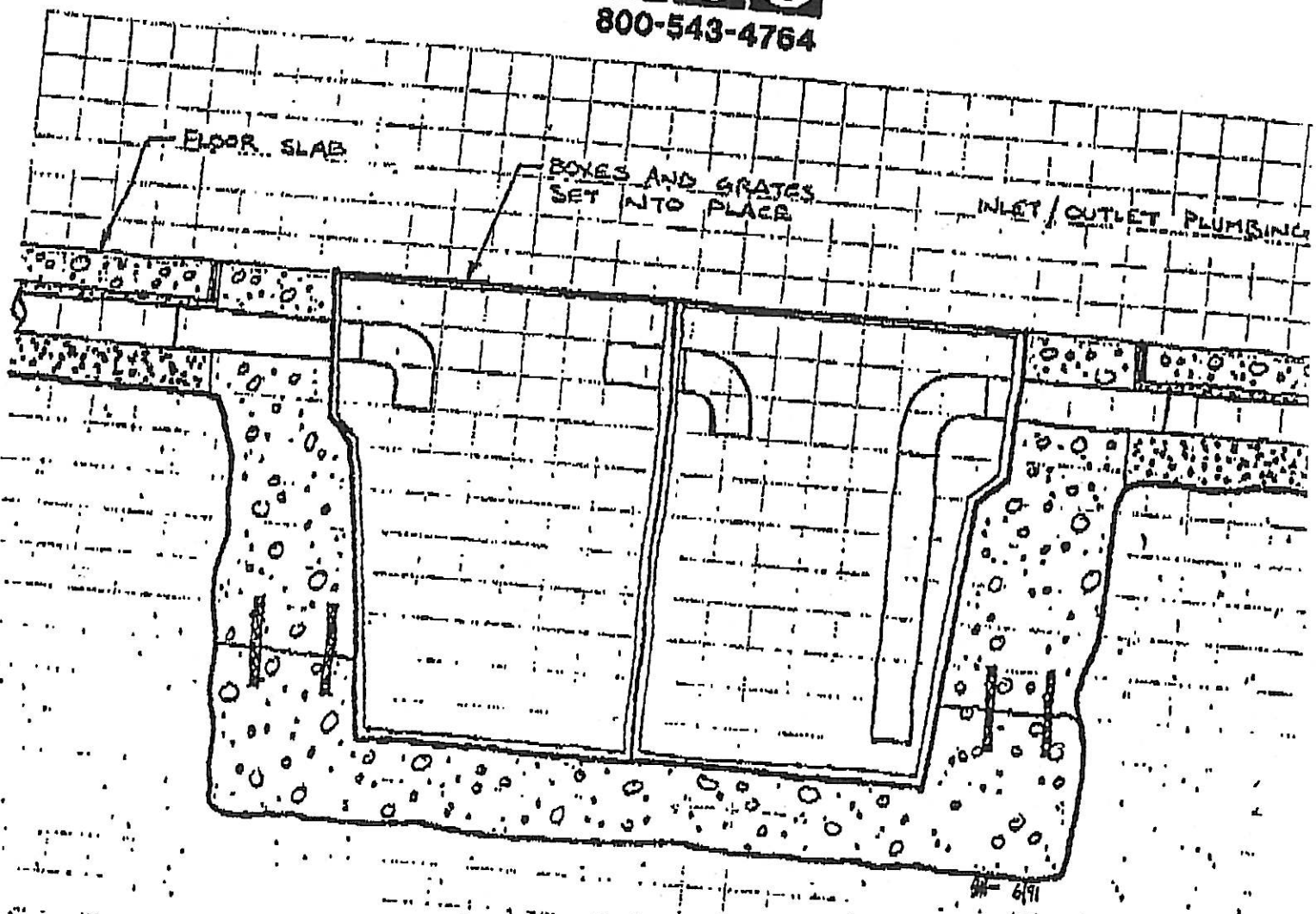


3. FINAL CONCRETE POUR AND PVC TUBE INSTALLATION

- SET COVER PLATES IN PLACE ON BOXES BEFORE POURING FINAL CONCRETE LEVEL TO PROVIDE SUPPORT AGAINST WEIGHT OF CONCRETE.
- FINISH CONCRETE LEVEL WITH TOP OF BOXES. SLAB AND TOP OF OIL SEPARATOR BOXES MUST BE FLUSH.
- SET PVC TUBES INTO PLACE AND SEAL IF NECESSARY.

OIL / WATER SEPARATOR
BASIC INSTALLATION

POLYMER PRODUCTS
ACO
800-543-4764



4. FLOOR SLAB AND PLUMBING CONNECTION

- FINISH INSTALLATION WITH FLOOR SLABS AND EXPANSION JOINTS.
- JOIN AND SEAL PVC PLUMBING TO OIL SEPARATOR BOX TUBES AND LOCATE IN CORRECT POSITION.

Wilcox Truck Line, Inc.

Post Office Box 3325
Springfield, MO 65808

Phone (417) 883-711

Date: 2/8/94

To: Bob Corson
864 - 1918

From: Curt Lindsay

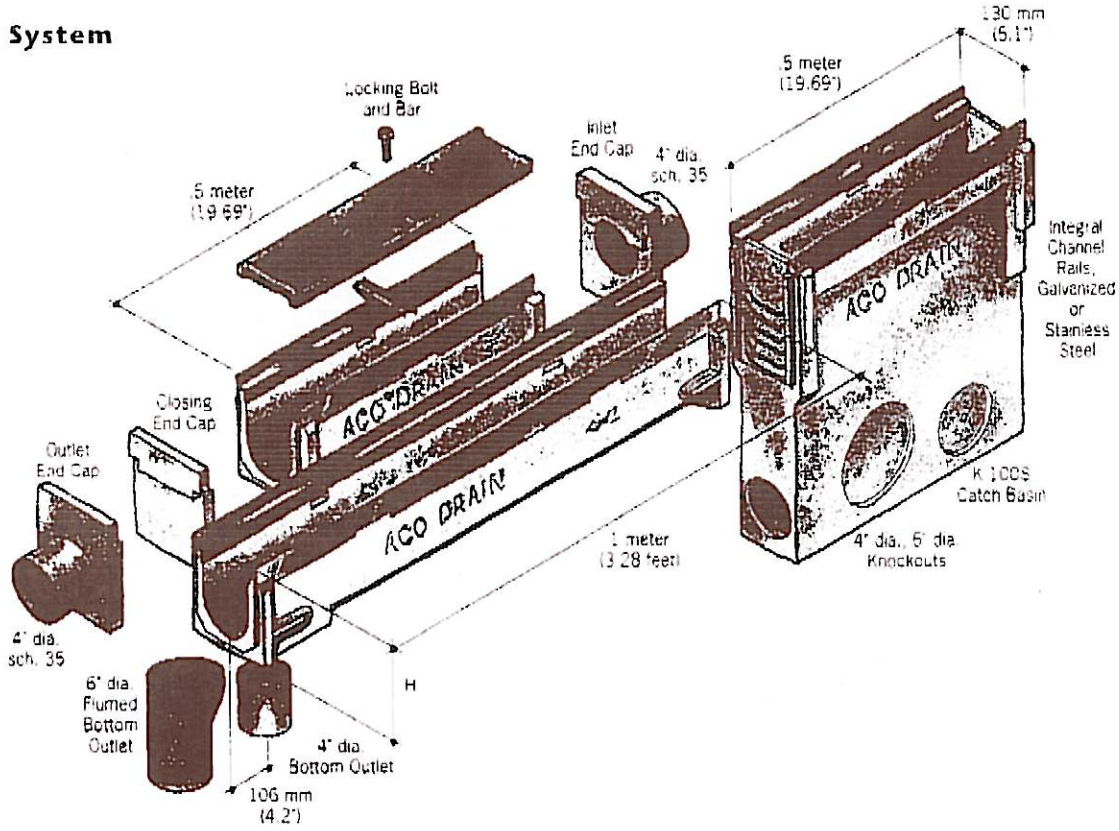
Regarding: Separator Dimensions

Facsimile Transmission Sheet
Fax # 417 - 887 - 3024

ACO DRAIN®

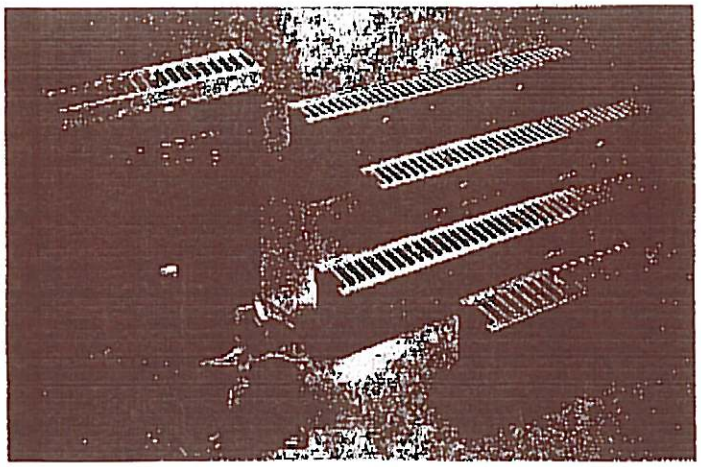
K 100S Channel Slope®

Drain System



ACO K 100S is a sloped trench drain system which incorporates an integral cast-in metal rail edge design. This innovative concept provides reinforced edge protection for the polymer concrete channel and offers a striking and distinctive finished appearance.

The K 100S channel utilizes a locked cover grate and rail which protects the polymer concrete edge. A number of different cover grates with matching cast-in rails are available. When fitted with a heavy duty ACO cover grate, K 100S can be recommended for hard wheel traffic of 10 ton wheel loads and up to 60 ton gross vehicle weights.



Where visual effect is of paramount importance, ACO can supply cover grates and matching cast-in rails from its precious metal series. These include attractive brass, copper or stainless steel. This important feature allows architects and designers to provide efficient surface water drainage while also enhancing the visual appearance of projects such as shopping malls, major entrance ways and other aesthetic locations.

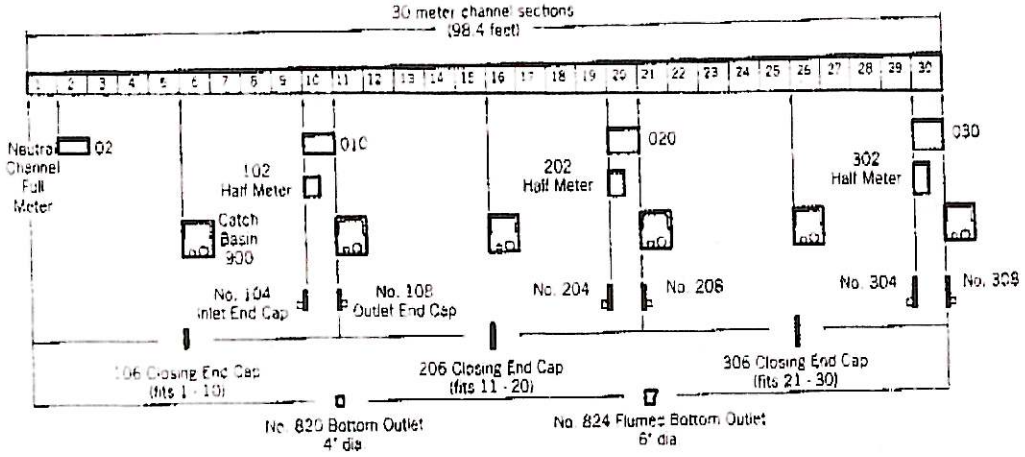
Refer to pages 22 - 23 for complete grating information.

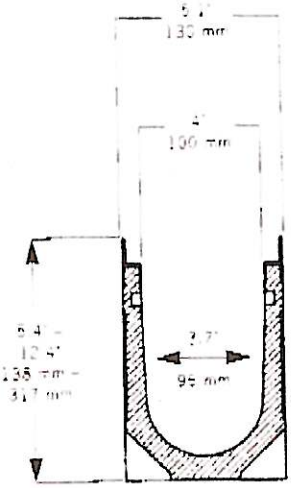
Complete technical support when designing an ACO trench drain system for your facility and requirements is available from the specialists at ACO.

440 N. NETTLETON

ACO DRAIN®

K 100S System Overview





These numbers are intended to provide general assistance only. *ACO has developed a sophisticated computer-aided program which is available to customers. This system will assist in designing the correct drainage solution based on the physical and topographical features of the individual site. For more details on this service contact the ACO team of professionals toll free at 1-800-543-4764.*

Hydraulic Capacity and End Depths K 100S System

Channel Number	End Depth* in	mm	Slope	Holding Capacity (gallons)	Single Channel Est. CFS	Est. GPM	Weight lbs.
K 100S-1	5.6	143	0.6	2.3	.29	128	31.0
K 100S-02#	5.6	143	0.0	2.3	.33	146	31.0
K 100S-2	5.8	149	0.6	2.6	.31	141	31.0
K 100S-3	6.0	155	0.6	2.5	.34	151	32.0
K 100S-4	6.3	161	0.6	2.7	.36	164	34.0
K 100S-5	6.5	167	0.6	2.9	.39	177	34.0
K 100S-6	6.7	173	0.6	3.0	.42	187	35.0
K 100S-7	7.0	179	0.6	3.2	.45	200	37.0
K 100S-8	7.2	185	0.6	3.4	.47	213	39.0
K 100S-9	7.4	191	0.6	3.5	.49	224	39.0
K 100S-010#	7.4	191	0.0	3.6	.51	229	39.0
K 100S-102*	7.4	191	0.0	3.6	.51	229	21.0
K 100S-10	7.7	197	0.6	3.7	.53	237	41.0
K 100S-11	7.9	203	0.6	3.8	.56	250	41.0
K 100S-12	8.1	209	0.6	4.0	.58	261	42.0
K 100S-13	8.4	215	0.6	4.2	.61	274	42.0
K 100S-14	8.6	221	0.6	4.3	.64	287	43.0
K 100S-15	8.9	227	0.6	4.5	.67	301	43.0
K 100S-16	9.1	233	0.6	4.6	.70	314	44.0
K 100S-17	9.3	239	0.6	4.8	.72	324	45.0
K 100S-18	9.6	245	0.6	4.9	.75	338	46.0
K 100S-19	9.8	251	0.6	5.1	.78	351	47.0
K 100S-020#	9.8	251	0.0	5.2	.79	356	47.0
K 100S-202*	9.8	251	0.0	5.2	.79	356	26.0
K 100S-20	10.0	257	0.6	5.3	.81	362	50.0
K 100S-21	10.3	263	0.6	5.4	.84	375	52.0
K 100S-22	10.5	269	0.6	5.6	.86	389	52.0
K 100S-23	10.7	275	0.6	5.7	.89	399	53.0
K 100S-24	11.0	281	0.6	5.9	.92	413	53.0
K 100S-25	11.2	287	0.6	6.1	.95	426	54.0
K 100S-26	11.5	293	0.6	6.2	.98	440	54.0
K 100S-27	11.7	299	0.6	6.4	1.01	453	55.0
K 100S-28	11.9	305	0.6	6.5	1.03	464	55.0
K 100S-29	12.2	311	0.6	6.7	1.06	477	55.0
K 100S-030#	12.2	311	0.0	6.8	1.08	485	55.0
K 100S-302*	12.2	311	0.0	6.8	1.08	485	31.0
K 100S-30	12.4	317	0.6	6.9	1.09	491	56.0

Neutral Full Meter Channel
* Neutral Half Meter Channel

1460 N. Nettleton